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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,427	01/25/2002	Alexander Ksendzov	0007975-0032	9706

7590 02/12/2003

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EXAMINER

AL NAZER, LEITH A

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 02/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/057,427		KSENDZOV, ALEXANDER	
	<b>Examiner</b>		<b>Art Unit</b>	
	Leith A Al-Nazer		2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

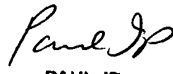
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

  
**PAUL IP**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) ____.   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because there is no coherency between the figures. For example, how is figure 1 related to figure 2? Examiner believes that the waveguide shown in figure 2 is a part of the system shown in figure 1, but Examiner is unsure where it is placed in the system since the labels found in figure 2 (“200”, “210”, and “220”) are not found in figure 1. In many cases, there appears to be more than one number for the same element. For example, reference numbers 100, 420, and 500 all represent a substrate. This type of situation is found throughout all the figures.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1 and 12 recite “external feedback elements”. However, the specification does not clarify which element(s) provide feedback or how those elements are situated to provide feedback.

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4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1 and 12 recite a “ring resonator” and “feedback elements”.

However, the individual components comprising the “ring resonator” and the “feedback elements” are not stated. Furthermore, no structural connections between the ring resonator and feedback elements are provided.

Claims 3 and 14 recite the term “narrow reflection band”. This term is vague, and as a result, Examiner is unsure what is being claimed.

Claims 4 and 15 recite the term “sharp reflectance resonance”. This term is vague, and Examiner is unsure what is being claimed.

Claims 9 and 20 recite the term “evanescent wave interaction”. This is not a generic term in the art, and therefore, must be defined in the respective claims.

Claims 10 and 21 recite the term “said Bragg grating is matched with one of the resonator peaks”. The use of the word “matched” renders the claim vague and indefinite since the context in which it is used does not provide the necessary structure to conform the invention.

#### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4, 5, 8, 9, 12, 15, 16, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Bernard et al '342.

With respect to claims 1 and 12, Bernard teaches a narrow linewidth hybrid semiconductor laser comprising a ring resonator (figure 6) in combination with external feedback elements (16).

With respect to claims 4, 5, 15, and 16, Bernard teaches the external feedback elements comprising a waveguide (figure 6).

With respect to claims 8, 9, 19, and 20, Bernard teaches the ring resonator comprising a waveguide ring (56) and two straight waveguide sections (58 and 62).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 2, 3, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernard et al '342 in view of Minden et al '038.

Claims 2, 3, 13, and 14 require the external feedback elements use Bragg gratings. Minden teaches using Bragg gratings as feedback elements (figure 1a). Bernard and Minden are analogous art because they are from a similar problem solving area: narrow bandwidth semiconductor laser systems. Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the Bragg grating of Minden with the system as taught or suggested by Bernard to obtain the invention as specified in claims 2, 3, 13, and 14.

11. Claims 6, 7, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernard et al '342 in view of Holzner et al '885 and Iwasaki '973.

Claims 6 and 17 require the waveguide be made of silicon-oxide and silicon-oxinitride. Such materials are well known in the art, as is evidenced by Iwasaki (column 5, lines 20-25) and Holzner (column 5, lines 23-52). Iwasaki, Holzner, and Bernard are analogous art because they are from a similar problem solving area: optical waveguide systems. At the time of the invention, it would have been obvious to one having ordinary skill in the art to combine the materials taught by Iwasaki and Holzner with the system as taught or suggested by Bernard. The motivation for doing so would have been to provide a suitable material to conform the optical waveguide, and a material which would minimize loss of signal in the waveguide.

With respect to claims 7 and 18, Holzner teaches a waveguide based on plasma enhanced chemical vapor deposition silicon-oxide / silicon-oxinitride waveguide technology (column 5, lines 23-52).

12. Claims 10, 11, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernard et al '342 in view of Minden et al '038 as applied to claims 2, 3, 13, and 14 above, and further in view of the admitted Prior Art.

Claims 10 and 21 require the Bragg gratings be matched with one of the resonator peaks, and claims 11 and 22 require the matching be accomplished by depositing a heater element on the top of the ring resonator. Applicant states that such a setup has been disclosed by Paivi Heimala (page 17, lines 22-27) and is therefore known in the art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the heater element of Heimala with the system as taught or suggested by Bernard. The motivation for doing so would have been to match the Bragg gratings with one of the resonator peaks.

#### ***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leith A Al-Nazer whose telephone number is 703-305-2717. The examiner can normally be reached on Monday-Friday 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3329.

LA  
January 24, 2003

  
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